IV. AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A water regeneration method for discharging ice condensed in a portion cooled by a cryogenic refrigerator installed in a case to an outside of the case, comprising:

a temperature increasing step for melting the ice into water at approximately atmospheric pressure;

a vaporizing step for vaporizing water by performing a plurality of first roughing steps between the approximate atmospheric pressure and a first reduced pressure being less than the atmospheric pressure but higher than and yet close to a water-freezing pressure that causes the water to freeze;

a water discharge step for discharging water by performing a plurality of second roughing steps between a second reduced pressure and the first reduced pressure, the second reduced pressure being less than the atmospheric pressure and greater than the first reduced pressure; and

a water vapor discharging step for discharging water vapor ~~at~~ by performing a plurality of third roughing steps between a third reduced pressure and a fourth reduced pressure, the third and fourth reduced pressures being less than the first reduced pressure and the third reduced pressure being greater than the fourth reduced pressure.

2. (Original) The water regeneration method according to claim 1, wherein each of the vaporizing step and the discharging step includes buildup determination.

3. (Original) The water regeneration method according to claim 1, wherein the temperature increasing step is a warm-up step for increasing a temperature of the portion of the case in which the ice is condensed to a melting point of the ice or higher to melt the ice.

4. (Previously Presented) The water regeneration method according to claim 1, wherein the temperature increasing step is performed by one or more of temperature increase by a reverse rotation in which a motor of the refrigerator is rotated in an opposite direction to a rotation direction during cooling, temperature increase by purge in which a purge gas having a higher temperature than the melting point of the ice is made to flow in the case to return a pressure in the case that is kept at vacuum to an atmospheric pressure and improve thermal conductivity with the outside of the case, and temperature increase by a heater.

5. (Previously Presented) The water regeneration method according to claim 1, wherein, in the vaporizing step, water is vaporized by performing rough evacuation to reduce a pressure of the portion in which the water generated from melting of the ice by the temperature increasing step is accumulated within a range in which the temperature and the pressure of the portion are prevented from reaching a freezing point of the water, a buildup determination for determining pressure increase by discharged moisture or a gas when the evacuation is stopped is performed, and the water vaporization and the buildup determination are repeated until the water vanishes away.

6. (Previously Presented) The water regeneration method according to claim 5, wherein the first reduced pressure is set to approximately 100 Pa and the second reduced pressure is set to approximately 200 Pa.

7. (Previously Presented) The water regeneration method according to claim 1, wherein the discharging step is an evacuation step for discharging the water vapor by further reducing the pressure by the rough evacuation at a time when the water is vaporized by the vaporizing step, performing a buildup determination to determine the pressure increase by a gas when the evacuation is stopped, and repeating the discharge of the water vapor and the buildup determination until the pressure increase is smaller than a value used for the determination.

8. (Previously Presented) The water regeneration method according to claim 1, wherein the temperature increasing step is switched to the vaporizing step at a time when a temperature of the portion of the case in which the ice is condensed reaches the melting point of the ice.

9. (Previously Presented) The water regeneration method according to claim 5, wherein the vaporizing step is switched to the discharge step based on the buildup determination using the discharged moisture or gas when the evacuation is stopped.

10. (Currently Amended) A water regeneration apparatus for discharging ice condensed in a portion cooled by a cryogenic refrigerator installed in a case to an outside of the case, comprising:

temperature increasing means for melting the ice into water at approximately atmospheric pressure;

vaporizing means for vaporizing the water by performing a plurality of first roughing steps between the approximate atmospheric pressure and a first reduced pressure being less than the atmospheric pressure but higher than and yet close to a water-freezing pressure that causes the water to freeze;

water discharge means for discharging water to the outside of the case by performing a plurality of second roughing steps between a second reduced pressure and the first reduced pressure, the second reduced pressure being less than the atmospheric pressure and greater than the first reduced pressure; and

water vapor discharging means for discharging water vapor ~~at a third reduced pressure being less than the first reduced pressure to the outside of the case~~by performing a plurality of third roughing steps between a third reduced pressure and a fourth reduced pressure, the third and fourth reduced pressures being less than the first reduced pressure and the third reduced pressure being greater than the fourth reduced pressure.

11. (Original) The water regeneration apparatus according to claim 10, wherein the temperature increasing means is achieved by one or more of a reverse rotation of a motor of the refrigerator, a purge gas, and a heater.

12. (Previously Presented) A cryopump comprising the water regeneration apparatus according to claim 10.

13. (Previously Presented) A water trap comprising the water regeneration apparatus according to claim 10.

14. (New) A water regeneration method for discharging ice condensed in a portion cooled by a cryogenic refrigerator installed in a case to an outside of the case, comprising:

a temperature increasing step for melting the ice into water at an approximate atmospheric pressure of approximately 100,000 Pa;

after the temperature increasing step, a vaporizing step for vaporizing water by performing a plurality of first roughing steps between the approximate atmospheric pressure of approximately 100,000 Pa and a first reduced pressure of approximately 100 Pa being higher than and yet close to a water-freezing pressure that causes the water to freeze;

after the vaporizing step, a water discharge step for discharging water by performing a plurality of second roughing steps between a second reduced pressure of approximately 200 Pa and the first reduced pressure of approximately 100 Pa; and

after the water discharge step, a water vapor discharging step for discharging water vapor by performing a plurality of third roughing steps between a third reduced pressure of approximately 15 Pa and a fourth reduced pressure of approximately 10 Pa.